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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : A61H 39/04, A61F 7/08		A1	(11) International Publication Number: WO 00/56262
			(43) International Publication Date: 28 September 2000 (28.09.00)
(21) International Application Number: PCT/KR00/00247			(81) Designated States: AE, AL, AU, BA, BB, BG, BR, CA, CN, CR, CU, CZ, DM, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, YU, ZA, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
(22) International Filing Date: 22 March 2000 (22.03.00)			
(30) Priority Data: 1999/10143 24 March 1999 (24.03.99) KR			
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(54) Title: FINGER-PRESSURE FOMENTATION DEVICE			
(57) Abstract			
<p>The present invention relates, in general, to a finger-pressure fomentation device and, more particularly, to a portable pressure and fomentation device, which is easily utilized and conveyed because its body and its electronic devices are integrated with its power supply into a single body, and which prevents its user from getting burned and allows its fomentation effect to be maximized because its pressing cones maintain a constant temperature. The present invention provides a pressure and fomentation device, comprising: a body (10) in which a plurality of pressing cones (15) are inserted into a plurality of through holes (10a) while being projected upward from a top of the body, the through holes (10a) being formed through the top of the body and spaced apart from one another; a plurality of heat emitting lamps (20) situated in the lower portions of the interiors of the pressing cones (15); a temperature sensing unit (30) for sensing the temperatures of the pressing cones (15) heated by the heat emitting lamps (20); a temperature setting unit (50) for allowing a desired temperature of the pressing cones (15) to be set, the temperature setting unit (50) being mounted on a portion of the body (10); a controller (C) for controlling the application of a voltage from the power supply (Vcc) to the heat emitting lamps (20) so as to allow an actual temperature sensed by the temperature sensing unit (30) to coincide with a temperature set by the temperature setting unit (50), the controller (C) being mounted in the interior of the body (10); and an operating switch (SW) for commanding the controller (C) to be operated.</p>			

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FINGER-PRESSURE FOMENTATION DEVICE

Technical Field

The present invention relates, in general, to a finger-pressure fomentation device and, more particularly, to a portable pressure and fomentation device, which
5 is easily utilized and conveyed because its body and its electronic devices are integrated with its power supply into a single body, and which prevents its user from getting burned and allows its fomentation effect to be maximized because its pressing cones maintain a constant temperature.

Background Art

10 Generally, there is known a pressure and fomentation device wherein a plurality of pressing cones are projected from a flat body at the top of the flat body, a plurality of heat emitting lamps are respectively mounted in the lower portions of the interiors of the pressing cones, and the heat emitting lamps emit heat by means of a voltage supplied from an external power source.

15 In the utilization of the pressure and fomentation device, if the heat emitting lamps are operated while a user's back is in tight contact with the upper surface of the pressure and fomentation device, the pressing cones are heated by means of the heat emitting lamps and acupuncture and fomentation effects are generated by the heated pressing cones.

20 However, in the conventional pressure and fomentation device, since the light emitting lamps are rendered to receive a voltage from an external power source, the pressure and fomentation device can be utilized only in a place where the external power source can be provided. As a result, the conventional pressure and fomentation device is problematic in that excessive limitations are imposed on
25 the utilization and conveyance of the pressure and fomentation device.

Additionally, since the conventional pressure and fomentation device has a simple construction wherein the heat emitting lamps are continuously heated by the external power source, the conventional pressure and fomentation device is problematic in that the user's back may get burned when the light emitting lamps are heated excessively.

Disclosure of the Invention

Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and an object of the present invention is to provide a portable pressure and fomentation device wherein a plurality of pressing cones are projected from a body, a plurality of light emitting lamps are mounted in the interior of the body, and a power supply unit is mounted into the interior of its body, thereby being easily utilized in a desired place.

Another object of the present invention is to provide a portable pressure and fomentation device wherein temperature control means is mounted into the interior of its body, thereby preventing a user from getting burned and maximizing its fomentation effect using pressing cones at a constant temperature.

In order to accomplish the above object, the present invention provides a pressure and fomentation device, comprising: a body in which a plurality of pressing cones are inserted into a plurality of through holes while being projected upward from a top of the body, the through holes being formed through the top of the body and spaced apart from one another; a plurality of heat emitting lamps situated in the lower portions of the interiors of the pressing cones; a temperature sensing unit for sensing the temperatures of the pressing cones heated by the heat emitting lamps; a temperature setting unit for allowing a desired temperature of the pressing cones to be set, the temperature setting unit being mounted on a portion of the body; a controller for controlling application of a voltage from the power supply to the heat emitting lamps so as to allow an actual temperature sensed by

the temperature sensing unit to coincide with a temperature set by the temperature setting unit, the controller being mounted in the interior of the body; and an operating switch for commanding the controller to be operated.

Brief Description of the Drawings

5 The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a perspective view showing a portable pressure and fomentation device in accordance with a preferred embodiment of the present invention;

10 Fig. 2 is a block diagram showing the construction of the portable pressure and fomentation device;

Fig. 3 is a partial sectional view showing a state where a pressing cone is mounted to a body;

Fig. 4 is an exploded perspective view showing another pressing cone;

15 Fig. 5 is a partially sectional assembly view of Fig. 4;

Fig. 6 is a perspective view showing a portable pressure and fomentation device in accordance with another embodiment of the present invention

Fig. 7 is a perspective view showing a portable pressure and fomentation device in accordance with a further embodiment of the present invention; and

20 Fig. 8 is a partially sectional assembly view of Fig. 7.

Best Mode for Carrying Out the Invention

Hereafter, a portable pressure and fomentation device in accordance with the present invention will be described in detail with reference to the accompanying drawings.

25 Fig. 1 is a perspective view showing the portable pressure and

fomentation device in accordance with a preferred embodiment of the present invention. Fig. 2 is a block diagram showing the construction of the portable pressure and fomentation device. As illustrated in the drawings, the portable pressure and fomentation device of the present invention comprises a body 10, a plurality of heat emitting lamps 20, a temperature sensing unit 30, a temperature setting unit 50, a set temperature display 60, a controller C and an operating switch SW.

The body 10 is fabricated to have a flat top that is sized to allow a user to lay his back on the flat top while he is in a reclined position. A plurality of through holes 10a are formed through the top of the body 10 while being regularly spaced apart from one another. A plurality of pressing cones 15 are respectively engaged with the through holes 10a to be projected upward. In such a case, the pressing cones 15 mounted to the body 10 are situated to be able to press two side acupressure regions that are respectively spaced apart from the vertebra by a certain distance.

Although the pressing cones 15 may be fabricated in various shapes, they are preferably fabricated in cone shapes respectively having hemispheric front portions so as to press the side acupressure regions gently. A plurality of small holes are perforated through each of the pressing cones 15. In fig. 1, reference numeral 11 designates armrests on which the user rests his arms and which are respectively extended from the side ends of the body 10.

The heat emitting lamps 20 are mounted in the interior of the body 10 while being respectively situated in the lower portions of the interiors of the pressing cones 15, and function to generate heat of relatively high temperature by means of a voltage supplied from a power supply Vcc.

The power supply Vcc may be a rechargeable battery mounted in the interior of the body 10, and is serially connected to the heat emitting lamps 20 through a power switch MS and a relay 5. That is, only while the power switch MS is switched on and the relay 5 is switched on, a voltage can be supplied from

the power supply Vcc to the heat emitting lamps 20. A light emitting lamp 2 is preferably mounted in the vicinity of the power switch MS, and serves to get lighted upon the operation of the power switch MS and to notify the user that the power switch MS is switched on.

5 The temperature sensing unit 30 includes a plurality of temperature sensors respectively mounted under the heat emitting lamps 20 so as to sense the temperatures of the pressing cones 15.

 The temperature setting unit 50 is an element that is mounted on a portion of the body 10 so as to allow the user to set a desired temperature of the pressing
10 cones 15. The temperature setting unit 50 is connected to input its output signal to the controller C, and comprises a temperature increasing button 51 for increasing a setting temperature by 1°C and a temperature reducing button 52 for reducing the setting temperature by 1°C.

 The set temperature display 60 is an element for designating a temperature
15 set by the temperature setting unit 50, and serves to designate a set temperature in response to a control signal input by the controller C. The set temperature display 60 may comprise a Liquid Crystal Display (LCD) 62 mounted to the outside of the body 10 so as to designate a set temperature and a Liquid Crystal Display (LCD) controller 61 so as to render the set temperature to be displayed on the LCD 62.

20 The controller C receives information about the actual temperature of the pressing cones 15 sensed by the temperature sensing unit 30 and information about the set temperature set by the temperature setting unit 50, and controls the application of a voltage from the power supply Vcc to the heat emitting lamps 20 so as to allow the actual temperature to coincide with the set temperature. That
25 is, when the actual temperature is lower than the set temperature, the controller C allows a voltage to be applied from the power supply Vcc to the heat emitting lamps 20 by rendering the relay 5 to be switched on; whereas when the actual temperature is higher than the set temperature, the controller C allows a voltage from the power supply Vcc to the heat emitting lamps 20 to be intercepted by

rendering the relay 5 to be switched off. As a result, the controller C renders the pressing cones 15 to be maintained at a constant temperature. The operating switch SW is mounted to a portion of the outside of the body 10 so as to command the controller C to be operated, and is connected to the controller C.

5 A voltage reducing unit 3 is an element for supplying a low voltage to the controller C, the temperature setting unit 50, a time setting unit (will be described) and the operating switch SW, and serves to receive a voltage from the power supply Vcc, reduce the received voltage to a low voltage and output the low voltage.

10 Meanwhile, an actual temperature display 40 may be mounted to a portion of the outside of the body 10, and an actual temperature sensed by the temperature sensing unit 30 may be displayed on the actual temperature display 40. In such a case, the actual temperature display 40 may comprise an LCD 42 mounted on the outside of the body 10 so as to designate a sensed actual temperature and an LCD
15 controller 41 so as to render the sensed actual temperature to be displayed on the LCD 42.

 Additionally, a time setting unit 70 and a set time display 80 may be mounted to portions of the outside of the body 10 and respectively connected to the controller C.

20 The time setting unit 70 may include a ten-minute button 71, a one-minute button 72 and a start/stop button 73. Whenever the ten-minute button 71 or the one-minute button 72 is pushed, a time period increased by ten minutes or one minute is displayed on the set time display 80. Additionally, when the start/stop button 73 is pushed one time, a time period displayed in the set time display 80 is
25 reduced while being counted down; whereas when the start/stop button 73 is pushed two times, a time period displayed in the set time display 80 is reset to zero. If a time period displayed in the set time display 80 reaches zero as time passes, the controller C renders the relay 5 to be switched off and renders a voltage having being supplied from the power supply Vcc to the heat emitting lamps 20 to

be intercepted.

The set time display 80 may comprise an LCD 82 mounted on the outside of the body 10 so as to designate a set time and an LCD controller 81 so as to receive a control signal corresponding to the set time and rendering the set time to be displayed on the LCD 82.

The pressing cones 15 are preferably made of jade and, thereby, generate not only an acupuncture effect and a fomentation effect but also a far infrared ray emitting effect beneficial to the human body. However, the pressing cones 15 may be made of metal that is good in heat conductivity. Additionally, the pressing cones 15 may be double-layered cones that are respectively made of metal and jade.

As illustrated in Figs. 4 and 5, a partition 19 is mounted to horizontally traverse the center portion of the interior of each heat emitting lamp 20, thereby forming a mugwort receiving space 16 over the partition 19. In such a case, the partition 19 may be fabricated to be cap-shaped and be engaged at the outside of its wall with the inside of the wall of the heat emitting lamp 20 in a screw engagement fashion.

In the meantime, as shown in Fig. 6, a pair of strips 17 and 18 are fixed at their inside ends to the side ends of the body 10, and engagement means 17a and 17b such as a Velcro tape is attached to the outer ends of the strips 17 and 18. In this case, the body 10 can be easily installed on the backrest of the seat of an automobile or the like, and, consequently, the user can utilize the portable pressure and fomentation device in an automobile or the like.

The operation of the portable pressure and fomentation device is as follows.

A user should recline with his back on the top of the body 10. At this time, the user should recline so that the upwardly projected pressing cones 15 come into contact with and press the side acupuncture regions of his back.

In this state, when the power switch MS is switched on, a voltage from the

power supply Vcc is applied to the input terminal of the relay 5, while the voltage is applied to the temperature setting unit 50, the time setting unit 70 and the controller C after the voltage is reduced to a low voltage via the voltage reducing unit 3. Accordingly, all the electronic devices are activated. At this time, 0°C is
5 respectively displayed on the actual temperature display 40 and the set temperature display 60, and zero is displayed on the set time display 80.

In this state, when a desired temperature is set by the manipulation of the temperature increasing button 51 or the temperature reducing button 52, the controller C store information about a temperature set by the temperature setting
10 unit 50 and outputs a control signal corresponding to the set temperature to the LCD control unit 61 to allow the set temperature to be displayed.

When the ten-minute button 71 or the one-minute button 72 is manipulated, the controller C that has sensed this manipulation outputs a control signal corresponding to a set time to the LCD control unit 81, so that the set time is
15 displayed on the LCD 82. The user can set a desired time period of the heat emitting lamps 20 by the manipulation of the time setting unit 70.

In this state, when the operating switch SW is switched on, the controller C that has sensed the switching renders the relay 5 to be switched on, so that a voltage is applied from the power supply Vcc to the heat emitting lamps 20,
20 thereby allowing the heat emitting lamps 20 to emit heat. As the pressing cones 15 are heated by the heat emission of the heat emitting lamps 20, an acupressure effect and a fomentation effect with regard to the acupressure regions pressed by the pressing cones 15 can be obtained.

At the same time, the controller C receives an actual temperature sensed
25 by the temperature sensing unit 30, renders an actual temperature to be displayed on the actual temperature display 40 by outputting a control signal corresponding to the actual temperature to the actual temperature display 40, and allows the relay 5 to be switched on or off to render the actual temperature to coincide with a temperature set by the temperature setting unit 50.

That is, when the actual temperature is lower than the set temperature, the controller C allows a voltage to be applied from the power supply Vcc to the heat emitting lamps 20 by rendering the relay 5 to be switched on; whereas when the actual temperature is higher than the set temperature, the controller C allows a voltage from the power supply Vcc to the heat emitting lamps 20 to be intercepted by rendering the relay 5 to be switched off. The pressing cones 15 can be maintained at a constant temperature by the operation of the controller C, and, consequently, a fomentation effect by means of the pressing cones 15 can be optimized.

Meanwhile, in a case where the time setting unit 70 is manipulated, if the operating switch SW is operated and simultaneously the start/stop button 73 is operated, the set time displayed in the LCD 82 of the set time display 80 is reduced as time passes. While the set time is reduced, the controller C renders the relay 5 to be switched on or off a plurality of times, depending upon temperatures sensed by the temperature sensing unit 30. When the set time displayed on the LCD 82 is reduced to zero, the controller C renders the relay 5 to be switched off, thereby terminating the fomentation operation by the pressing cones 15.

In addition, in a case where the mugwort receiving space 16 is formed in the upper portion of the interior of each pressing cone 15 and each pressing cone 15 is heated with its mugwort receiving space 16 filled with mugwort, a mugwort fomentation effect as well as an acupressure effect and a general fomentation effect can be obtained. In a case where the pressing cones 15 are made of jade, a far infrared ray emitting effect can be obtained, additionally.

Further, in a case where the strips 17 and 18 are fixed to the side ends of the body 10 so as to fix the body 10 on the backrest of the seat of an automobile, the user can utilize the portable pressure and fomentation device in an automobile or the like, easily.

In the meantime, as shown in Figs. 7 and 8, an auxiliary plate 90 having height adjusting means may be provided over the body 10 so as to adjust the

projected height of the pressing cones 15 fixedly mounted to the body 10, additionally. The auxiliary plate 90 has a shape and a size respectively equal to those of the top of the body 10, and has passage holes 90a at positions corresponding to the positions of the pressing cones 15 so as to allow the auxiliary
5 plate 10 to be disposed on the top of the body 10 while the pressing cones 15 are inserted into the auxiliary plate 90.

The height adjusting means may consist of a plurality of adjusting screws 92 and threaded holes 12 so as to adjust the projected height of the pressing cones 15 fixedly mounted to the body 10 by adjusting the space between the top of the
10 body 10 and the auxiliary plate 90.

Each of adjusting screws 92 comprises a ball portion 92a engaged with the lower portion of the auxiliary plate 90, a threaded shank 92c vertically extended from the ball portion 92a, and an adjusting disc 92b formed between the ball portion 92a and the threaded shank 92c. The adjusting screws 92 are engaged
15 with the auxiliary plate 90 at the corners of the bottom of the auxiliary plate 90 in a ball joint fashion. The threaded holes 12 are formed at the corners of the top of the body 10 so that the adjusting screws 92 can be engaged with the threaded holes 12 while the pressing cones 15 are inserted into the passage holes 90a and projected upward.

In the construction described above, the space between the top of the body 10 and the auxiliary plate 90 can be adjusted by the manipulation of the adjusting screws 92 and, thereby, the projected height of the pressing cones 15 fixedly mounted to the body 11 can be adjusted. Since the projected height of the pressing cones 15 can be adjusted, the projected height of pressing cones 15 can be
25 adjusted properly depending upon the user's body form, physical constitution and health condition, so that an optimized healing effect by means of the pressing cones 15 can be obtained.

Industrial Applicability

As described above, in accordance with the present invention, since there is provided a pressure and fomentation device wherein its body and its various electronic devices are integrated with its power supply into a single body, the pressure and fomentation device can be easily utilized and conveyed, thereby
5 improving a user's convenience in which, for example, a user utilizes the device at his automobile and home.

Additionally, in accordance with the present invention, since its pressing cones can be maintained at a constant temperature, a user can be prevented from
10 getting burned and its fomentation effect can be maximized using pressing cones at a constant temperature. In accordance with some embodiments of the present invention, a mugwort fomentation effect and/or a far infrared ray emitting effect can be obtained. Furthermore, in an embodiment in which an auxiliary plate having height adjusting means is provided over the body, an optimized healing
15 effect can be obtained depending upon the user's body form, physical constitution and health condition.

Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing
20 from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

1. A pressure and fomentation device, comprising:

a body in which a plurality of pressing cones are inserted into a plurality of through holes while being projected upward from a top of the body, said through holes being formed through the top of the body and spaced apart from one another;

a plurality of heat emitting lamps situated in lower portions of interiors of said pressing cones;

a temperature sensing unit for sensing the temperatures of said pressing cones heated by the heat emitting lamps;

a temperature setting unit for allowing a desired temperature of the pressing cones to be set, said temperature setting unit being mounted on a portion of the body;

a controller for controlling application of a voltage from the power supply to the heat emitting lamps so as to allow an actual temperature sensed by said temperature sensing unit to coincide with a temperature set by said temperature setting unit, said controller being mounted in an interior of the body; and

an operating switch for commanding said controller to be operated.

2. The device according to claim 1, further comprising an actual temperature display for displaying a temperature sensed by said temperature sensing unit, said actual temperature display being mounted to a portion of an outside of said body.

3. The device according to claim 1, further comprising a time setting unit and a set time display mounted to portions of an outside of the body and respectively connected to said controller, said controller reducing a set time displayed in said set time display in response to a control of said time setting unit;

and intercepting a voltage having being applied from the power supply to said heat emitting lamps when the set time is reduced to zero.

5 4. The device according to claim 1, further comprising a partition mounted to horizontally traverse a center portion of an interior of each heat emitting lamp, thereby forming a mugwort receiving space over the partition.

 5. The device according to claim 1 or 4, wherein said pressing cones are made of jade.

10 6. The device according to claim 1, further comprising a pair of strips that are respectively fixed at their inside ends to side ends of said body, engagement means being attached to outer ends of said strips.

 7. The device according to claim 1, further comprising an auxiliary plate that has a plurality of passage holes into which said pressing cones are respectively inserted, and height adjusting means disposed between said body and said auxiliary plate for adjusting a space between said body and said auxiliary plate.

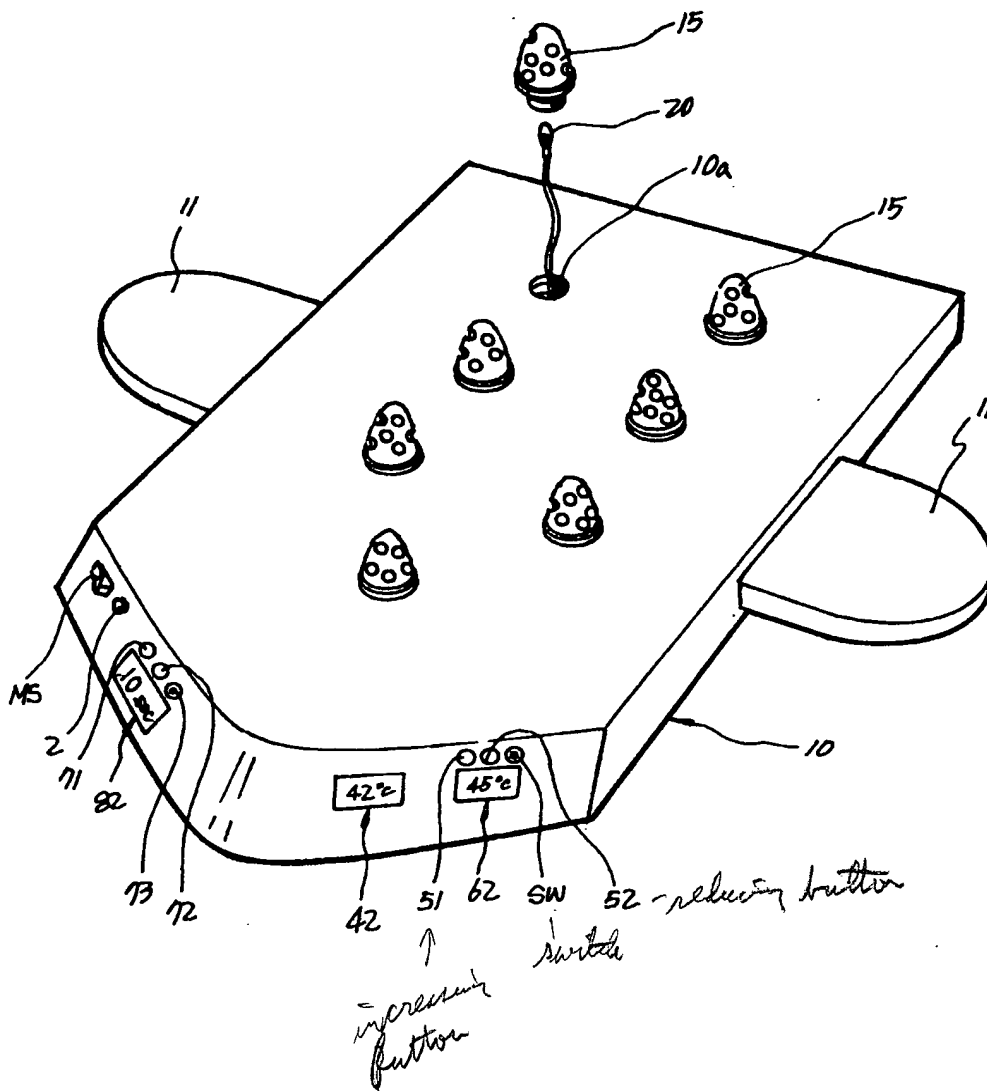
15 8. The device according to claim 7, wherein said height adjusting means comprises,

 a plurality of adjusting screws, each of said adjusting screws comprising a ball portion engaged with a lower portion of said auxiliary plate, a threaded shank vertically extended from said ball portion, and an adjusting disc formed between
20 the ball portion and the threaded shank, and

 a plurality of threaded holes, said threaded holes being formed at corners of a top of the body so as to be engaged with said adjusting screws while said pressing cones are inserted into the passage holes and projected upward.

9. The device according to claim 1, wherein said power supply is a battery mounted to an interior of said body.

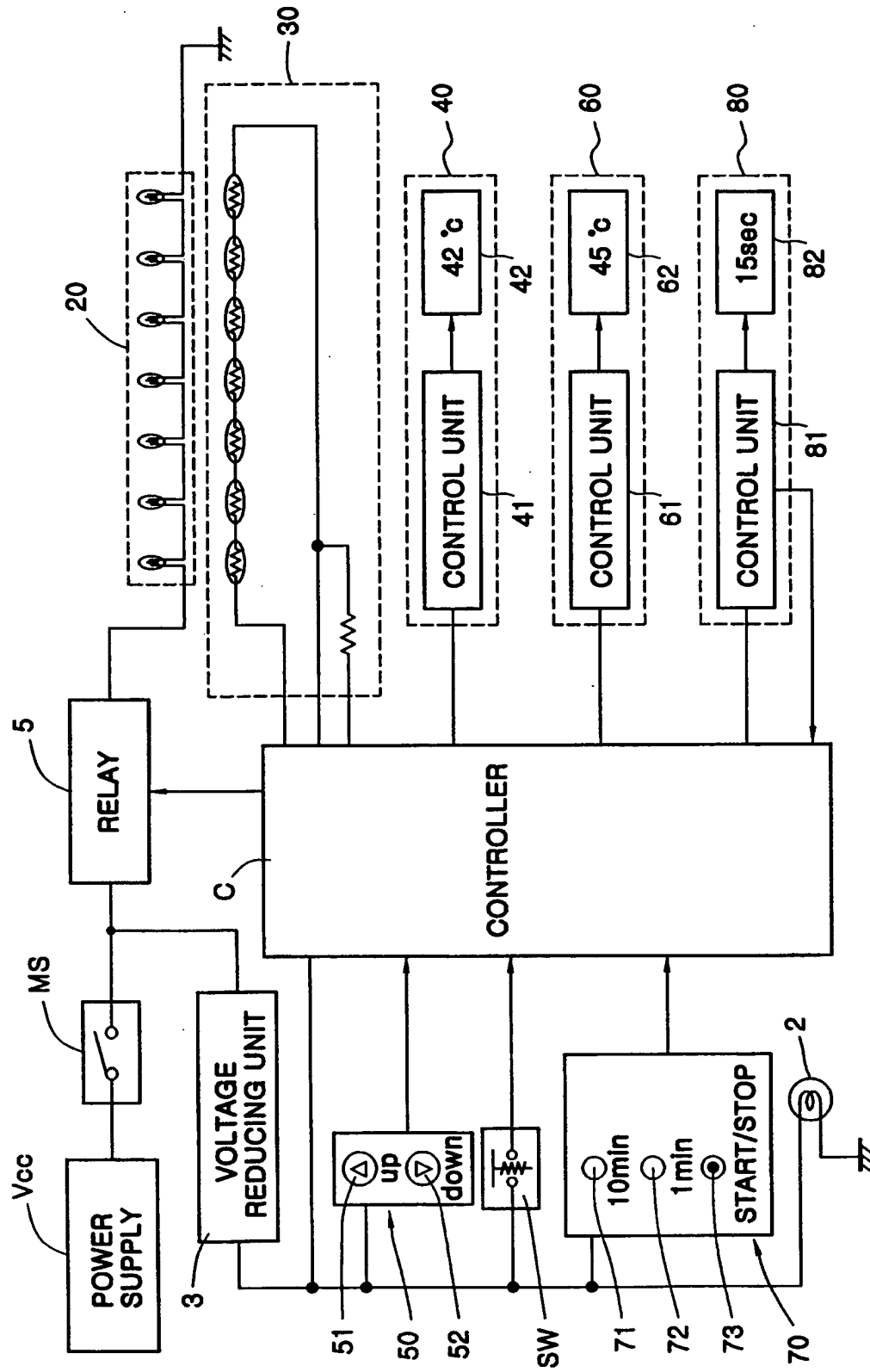
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FIG 1



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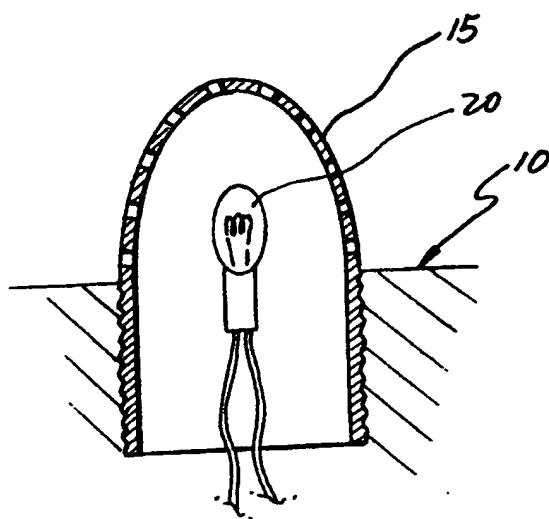
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FIG 2



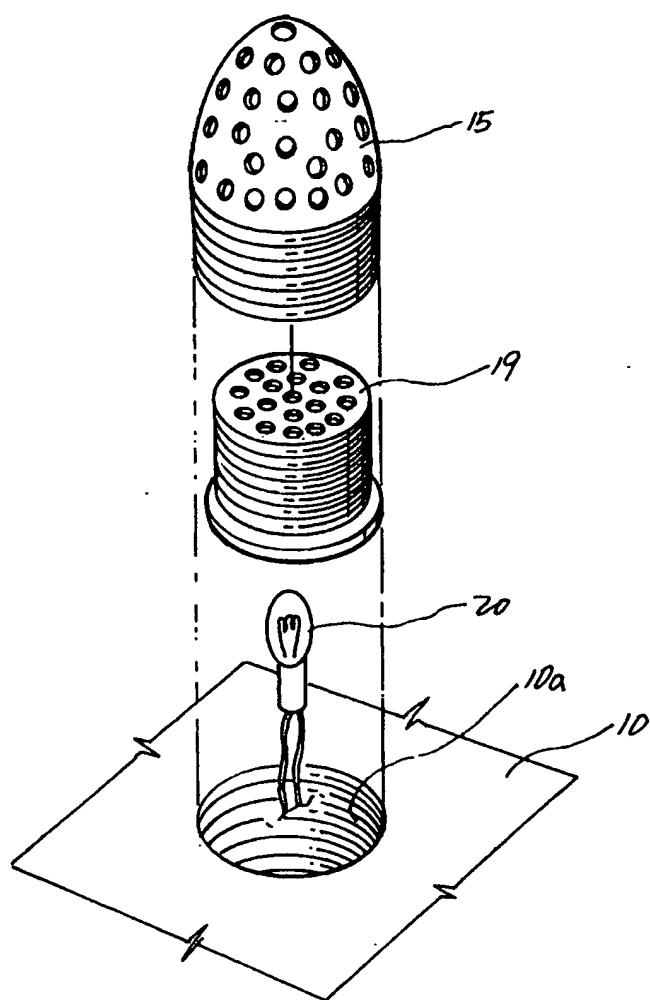
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FIG 3



4/7

FIG 4



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FIG 5

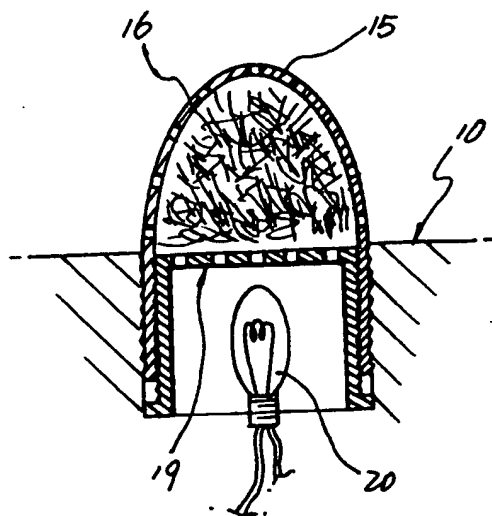
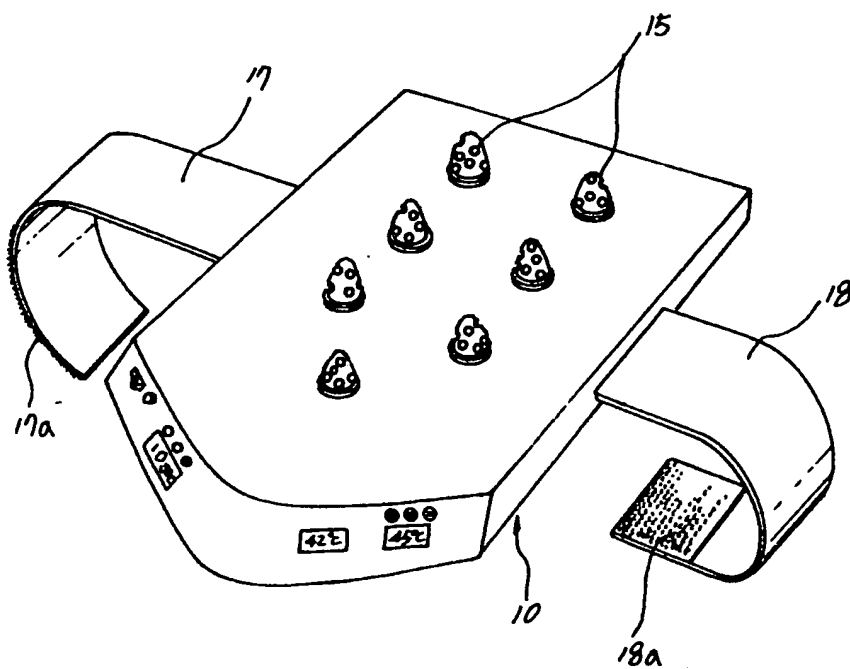
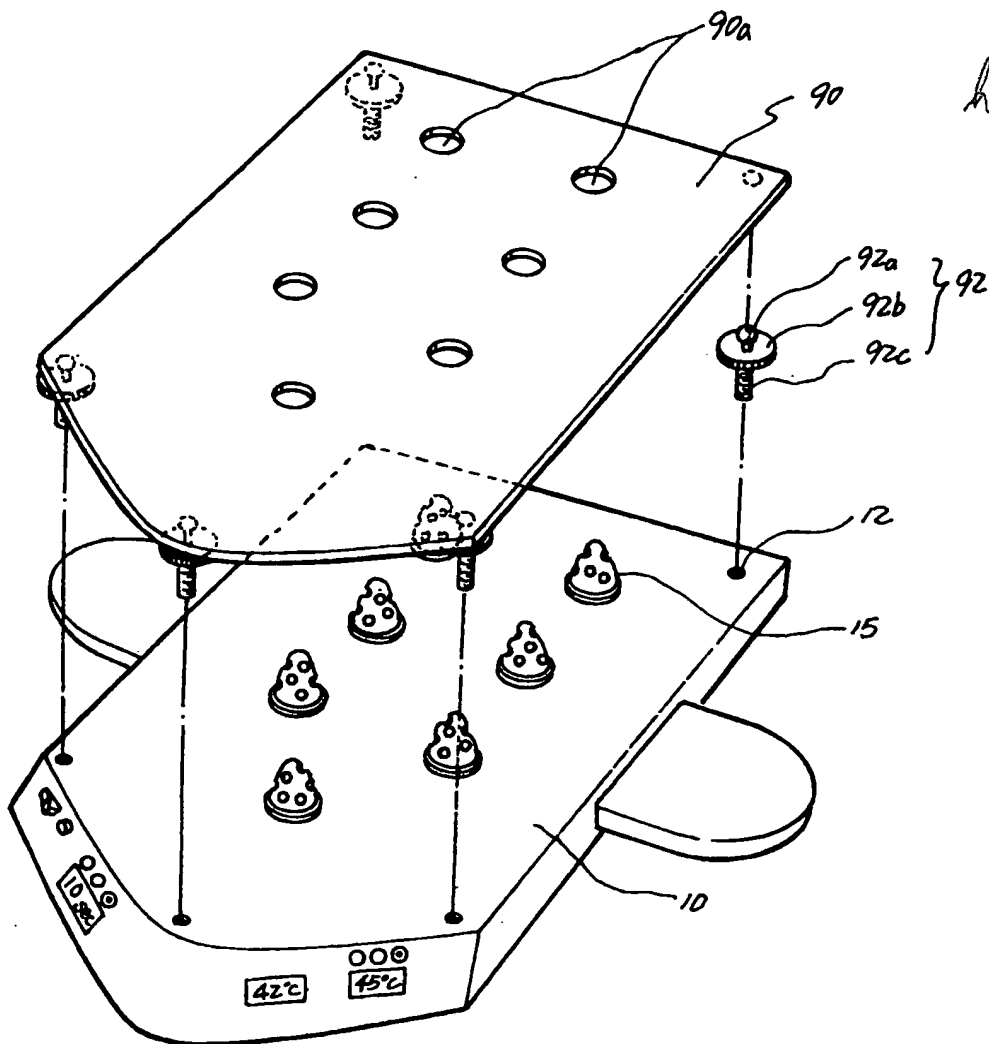


FIG 6



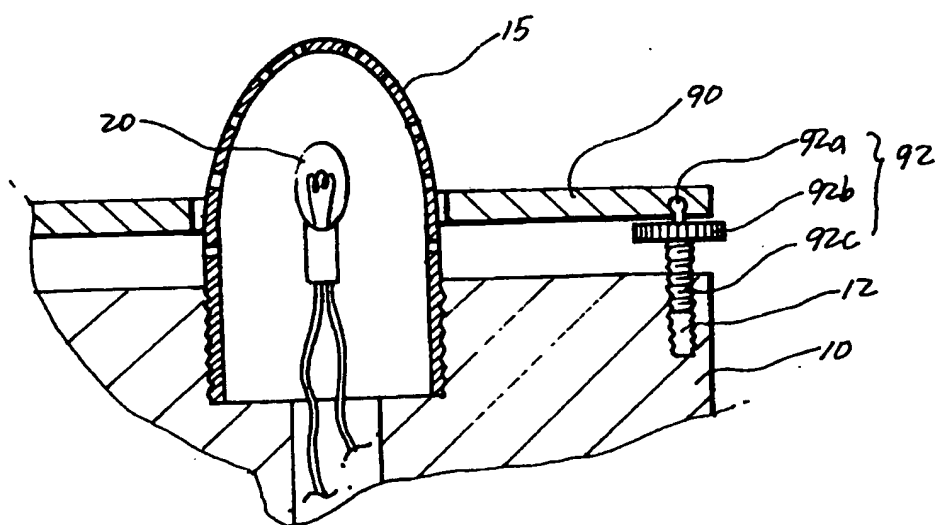
6/7
FIG 7



holes are "in dent" middle portion)


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FIG 8



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR00/00247

A. CLASSIFICATION OF SUBJECT MATTER IPC7 A61H 39/04, A61F 7/08 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC7 A61H 39/04, A61F 7/08 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched KR, JP : Classes as above Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PAJ, NPS		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 98-13724 U (HAN GUM DONG) 5 JUNE 1998 see claims 1-2, 6, whole document	1-2, 3, 5
A	jp 6-296640 A (SHIDA YUSUKE) 25 OCTOBER 1996 see Fig. 1 - 4, whole document	1, 3
A	KR 98-13724 U (PARK SANG GYU) 15 OCTOBER 1998 see whole document	1
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Date of the actual completion of the international search 10 JULY 2000 (10.07.2000)		Date of mailing of the international search report 19 JULY 2000 (19.07.2000)
Name and mailing address of the ISA/KR Korean Industrial Property Office Government Complex-Taejon, Dunsan-dong, So-ku, Taejon Metropolitan City 302-701, Republic of Korea Facsimile No. 82-42-472-7140		Authorized officer KIM, Hyun Sook Telephone No. 82-42-481-5584 

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR00/00247

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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KR 98 - 13724 U	15 OCTOBER 1998	NONE	